**UNITED STATES DEPARTMENT OF COMMERCE**
**National Oceanic and Atmospheric Administration**
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

NMFS Tracking No.: 2003/01077 April 29, 2004

Bruce E. Bernhardt
Forest Supervisor
Nez Perce National Forest
Route 2 Box 475
Grangeville, Idaho 83530

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Crooked River Channel Project, Crooked River, 170603050301, Idaho County, Idaho

Dear Mr. Bernhardt:

Enclosed is a document containing a biological opinion (Opinion) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of the proposed Crooked River Channel Project, Crooked River, 170603050301, Idaho County, Idaho. In this Opinion, NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of ESA-listed Snake River steelhead. As required by section 7 of the ESA, NOAA Fisheries includes reasonable and prudent measures with nondiscretionary terms and conditions that NOAA Fisheries believes are necessary to minimize the impact of incidental take associated with this action.

This document contains a consultation on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and its implementing regulations (50 CFR Part 600). NOAA Fisheries concludes that the proposed action may adversely affect designated EFH for Snake River chinook salmon. As required by section 305(b)(4)(A) of the MSA, included are conservation recommendations that NOAA Fisheries believes will avoid, minimize, mitigate, or otherwise offset adverse effects on EFH resulting from the proposed action. As described in the enclosed consultation, 305(b)(4)(B) of the MSA requires that a Federal action agency must provide a detailed response in writing within 30 days of receiving an EFH conservation recommendation.

If you have any questions regarding this letter, please contact Mr. Bob Ries or Mr. Dale Brege of my staff in the Idaho Habitat Branch at the Grangeville Field Office at (208) 983-3859.

Sincerely,

for Michael R Course

D. Robert Lohn
Regional Administrator

cc: J. Foss - USFWS
M. Benker - IDFG
I. Jones - NPT
P. Clark - NPNF

# Endangered Species Act Section 7 Consultation Biological Opinion
# and
# Magnuson-Stevens Fishery Conservation and Management Act
# Essential Fish Habitat Consultation

Crooked River Channel Project
Snake River Steelhead
Crooked River
170603050301
Idaho County, Idaho

Lead Action Agency: Nez Perce National Forest

Consultation Conducted By: NOAA's National Marine Fisheries Service,
Northwest Region

Date Issued: April 29, 2004

Issued by: for Michael R Course
D. Robert Lohn
Regional Administrator

NMFS Tracking No.: 2003/01077

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# 1. INTRODUCTION

The Endangered Species Act (ESA) of 1973 (16 USC 1531-1544), as amended, establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat on which they depend. Section 7(a)(2) of the ESA requires Federal agencies to consult with NOAA's National Marine Fisheries Service (NOAA Fisheries) and U.S. Fish and Wildlife Service (together "Services"), as appropriate, to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or adversely modify or destroy their designated critical habitats. This biological opinion (Opinion) is the product of an interagency consultation pursuant to section 7(a)(2) of the ESA and implementing regulations 50 CFR 402.

The analysis also fulfills the Essential Fish Habitat (EFH) requirements under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance EFH for those species regulated under a Federal fisheries management plan. Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (section 305(b)(2)).

The Nez Perce National Forest (NPNF) proposes to carry out the Crooked River Channel Project (CRCP), which is designed to keep a section of the Crooked River stream channel in its current location, maintain side channels along Crooked River, and restore several instream habitat structures. At the project site, the river is severely eroding the bank, and may leave the main channel during high water events. This would allow the stream to flow through an artificially constructed side channel that was not designed to accommodate high flows. If the stream were allowed to move into the side channel, the additional flow there would increase bank erosion and downstream sediment deposits. Also, if the side channel did capture the main flow, or even a significant amount of the flow, it would create a braided channel that would decrease adult salmonid upstream passage during low flows.

The NPNF is proposing to complete the project according to its authority under the National Forest Management Act of 1976 (36 CFR 219). The administrative record for this consultation is on file at the Idaho Habitat Office.

## 1.1 Background and Consultation History

Snake River spring/summer chinook salmon and steelhead are present in the action area, but only Snake River steelhead are listed under the ESA. Snake River spring/summer chinook salmon are considered a sensitive species in this area, but were not listed because they were not considered to be a remnant of, or genetically similar to, the native salmon population. Native fish are thought to have been extirpated during the early 20$^{th}$ century by the Lewiston and Harpster dams.

The present spring/summer chinook salmon population in the project area is likely the result of hatchery supplementation. Critical habitat for fall chinook salmon extends upriver on the Clearwater River to Lolo Creek, which is approximately 80 river miles downstream of the action area. There is designated EFH in the action area for chinook salmon.

The NPNF presented an initial summary of the CRCP to NOAA Fisheries at the North-Central Idaho Level 1 Team meeting on January 7, 2003. A draft biological assessment (BA) (USDA Forest Service 2003) was received by NOAA Fisheries on January 12, 2003. On July 24, 2003, the North-Central Idaho Level 1 Team agreed on the effects of the proposed project on listed species. NOAA Fisheries received a final BA and EFH assessment on the CRCP on August 21, 2003, and consultation was initiated at that time. The BA included determinations that the project was "likely to adversely affect" Snake River steelhead and "may adversely affect" chinook salmon EFH. There was a "no effect" determination for ESA listed fall chinook salmon and their critical habitat since neither are present in the action area.

The CRCP would likely affect tribal trust resources. Because the CRCP is likely to affect tribal trust resources, NOAA Fisheries contacted the Nez Perce Tribe (Tribe) pursuant to the Secretarial Order (June 5, 1997). A copy of the draft Opinion was electronically mailed to the Tribe for review and comments on December 10, 2003. The Tribe replied back to NOAA Fisheries on December 18, 2003, but did not offer any substantive comments on the project. The Tribe did recognize that this project was only a temporary improvement to the degraded channel, and would like to see a permanent solution to the degraded habitat conditions in Crooked River.

## 1.2 Proposed Action

Proposed actions are defined in the Services' consultation regulations (50 CFR 402.02) as "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas." Additionally, U.S. Code (16 U.S.C. 1855(b)(2)) further defines a Federal action as "any action authorized, funded, or undertaken or proposed to be authorized, funded, or undertaken by a Federal agency." Because the NPNF proposes to fund the action that may affect listed resources, it must consult under ESA section 7(a)(2) and MSA section 305(b)(2).

The CRCP occupies an 11-acre area, 2.5 miles upstream from the mouth of Crooked River, a tributary to the South Fork Clearwater River. Crooked River has been severely affected by past mining operations. The CRCP is located in a stream transition zone, where a steep, straight reach enters a flat, meandering reach. The river is eroding the bank and may leave the main channel and flow through a side channel. This would create the potential for the main channel to become braided, resulting in reduced fish passage during low flow conditions. This restoration project will create a temporary solution to the current degrading conditions, but a long-term solution is still needed.

An excavator and front-end loader will be used to construct a 3-foot high, 210-foot long berm along the Crooked River floodplain to maintain the main river channel and a side channel used for fish rearing. Gravel from an upland stockpile will be used to build the berm. An existing boulder structure will be reconfigured from a downstream V to an upstream V in the design of a vortex weir to reduce future aggradation. Another boulder structure will be reconfigured by lowering one wing of the structure to make log jams less likely to occur. A culvert leading from the main channel to the side channel will also be cleaned in order to facilitate fish passage. Two large woody debris (LWD) piles will be moved to prevent aggradation. Also, two point bars in Crooked River will be removed to redirect river flow and keep the flow from exerting undue pressure against severely eroding streambanks. The rock from the point bars will be placed atop the newly constructed berm.

The NPNF has proposed several measures to ameliorate the effects of the project. An instream work window, limited to 3 days total between July 1 and August 15 is designed to avoid steelhead redds and late emerging fry as well as non-listed spawning chinook salmon. The floodplain will be seeded with native species and annual grasses during the first growing season following construction. During construction, heavy equipment will be inspected for leaks to minimize toxic fuels potential. Equipment will also be inspected for seeds and dirt clods, which could spread noxious weeds. A fish biologist, or other qualified aquatic specialist, will conduct surveys prior to implementation to determine if redds are present in the action area. Woody debris will be moved from two locations where it is considered to be affecting bank stability, to alcoves, where the LWD will be utilized to enhance fish habitat. Any overhanging banks in the action area are to be avoided by heavy equipment and left undisturbed during construction activities.

### 1.3 Description of the Action Area

An action area is defined by the Services' regulations (50 CFR Part 402) as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The area affected by the proposed action extends from the work site (2.5 miles upstream from the mouth of Crooked River) to approximately 750 feet downstream. Within this stream reach, streambanks and sediment deposition patterns will be directly and indirectly affected by the action. The sixth field hydrologic unit code (HUC) encompassing the action area is 170603050301. The action area serves as spawning and rearing habitat for the Snake River steelhead Evolutionarily Significant Unit (ESU) listed in Table 1.

## 2. ENDANGERED SPECIES ACT - BIOLOGICAL OPINION

The objective of this Opinion is to determine if the Crooked River Channel Project is likely to jeopardize the continued existence of Snake River steelhead.

### 2.1 Evaluating the Effects of the Proposed Action

The standards for determining jeopardy and destruction or adverse modification of critical habitat are set forth in section 7(a)(2) of the ESA. In conducting analyses of habitat-altering actions under section 7 of the ESA, NOAA Fisheries uses the following steps of the consultation regulations: (1) Consider the biological requirements and status of the listed species; (2) evaluate the relevance of the environmental baseline in the action area to the species' current status; (3) determine the effects of the proposed or continuing action on the species, and whether the action is consistent with any available recovery strategy; and (4) determine whether the species can be expected to survive with an adequate potential for recovery under the effects of the proposed or continuing action, the effects of the environmental baseline, and any cumulative effects, and considering measures for survival and recovery specific to other life stages. In completing this step of the analysis, NOAA Fisheries determines whether the action under consultation, together with all cumulative effects when added to the environmental baseline, is likely to jeopardize the ESA-listed species or result in the destruction or adverse modification of critical habitat. If jeopardy or adverse modification are found, NOAA Fisheries may identify reasonable and prudent alternatives for the action that avoid jeopardy and/or destruction or adverse modification of critical habitat.

The fourth step above (jeopardy/adverse modification analysis) requires a two-part analysis. The first part focuses on the action area and defines the proposed action's effects in terms of the species' biological requirements in that area (i.e., effects on essential features). The second part focuses on the species itself. It describes the action's effects on individual fish, populations, or both, and places that impact in the context of the ESU as a whole. Ultimately, the analysis seeks to determine whether the proposed action is likely to jeopardize a listed species' continued existence or destroy or adversely modify its critical habitat. Critical habitat is not currently designated for listed steelhead; therefore, this Opinion does not address adverse modification of critical habitat. This Opinion does, however, consider effects on steelhead habitat to the extent that habitat affects the species.

#### 2.1.1 Biological Requirements

The first step NOAA Fisheries uses when applying ESA section 7(a)(2) to the listed ESUs considered in this Opinion includes defining the species' biological requirements within the action area. Biological requirements are population characteristics necessary for the listed ESUs to survive and recover to naturally reproducing population sizes at which protection under the

ESA would become unnecessary. The listed species' biological requirements may be described as characteristics of the habitat, population or both (McElhany *et al.* 2000). Interim recovery numbers for Snake River steelhead in the South Fork Clearwater River subbasin are 3,400 adult spawners (NMFS 2002). NOAA Fisheries uses lambda ($\lambda$) to represent the long-term population growth rate. In order to attain interim recovery numbers, lambda must be greater than one, indicating an increasing population.

### 2.1.2 Status and Generalized Life History of Listed Steelhead

In this step, NOAA Fisheries also considers the current status of the listed species within the action area, taking into account population size, trends, distribution, and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list the species and also considers any new data that is relevant to the species' status. A discussion of listed steelhead general life history is provided in NMFS (2001), available on the NOAA Fisheries website *(http://www.nwr.noaa.gov/1habcon/habweb/habguide/appendix_b.pdf)*).

The NPNF found that the CRCP is likely to adversely affect Snake River steelhead. Based on the life history of this ESU, the NPNF determined that it is likely that juvenile rearing (fry to smolt stages) would be adversely affected by the CRCP.

Columbia River salmon and steelhead populations have experienced a long-term decline in numbers since the 1870s (NRC 1996). Population declines have been caused by a variety of factors, including fishing, hydropower development, ocean conditions, and habitat that has been degraded or lost through agriculture, ranching, mining, timber harvest and urbanization (NRC 1996). Pre-development estimates of Columbia River salmon and steelhead range from 7.5 million (Chapman 1986) to 16 million fish (NPPC 1986). Run sizes for adult chinook salmon and steelhead in the Columbia River, estimated from annual counts at the Bonneville Dam from 1998-2003, average around 603,075 and 358,698, respectively (USACE 2002). Unusually large numbers of adult fish have been observed passing through Snake River dams since 2000. These large returns are thought to be largely a result of cyclic oceanic and climatic conditions favorable to anadromous fish (Marmorek and Peters 1998). It cannot yet be determined if the recent population increases represent a shift in the population growth rates (due to a corresponding shift in climatic conditions), or if the change is a temporary phenomenon. Factors, other than ocean conditions, such as downstream passage conditions for smolts, predation, fishing pressure, and habitat conditions in rearing areas also vary from year to year, and may offset gains from favorable ocean conditions in some years, or work synergistically in others.

**Table 1. References for additional background on listing status, critical habitat designation, protective regulations, and life history for the ESA-listed and candidate species considered in this consultation.**

| Species ESU | Status | Critical Habitat Designation | Protective Regulations | Life History |
|---|---|---|---|---|
| **Snake River Steelhead Trout (*Oncorhynchus mykiss*)** | Threatened; August 18, 1997; 62 FR 43937 | Under review May 7, 2002 | July 10, 2000; 65 FR 42422 | Busby *et al.* 1996; Nichelson *et al.* 1992 |

The Snake River steelhead ESU, listed as threatened on August 18, 1997 (62 FR 43937), includes all natural-origin populations of steelhead in the Snake River basin of southeast Washington, northeast Oregon, and Idaho. None of the hatchery stocks in the Snake River basin are listed, but several are included in the ESU.

Steelhead spend 1 to 4 years in the ocean before returning to fresh water to spawn. Adult Snake River steelhead return to mainstem rivers from late summer through fall, where they feed for several months before moving upstream into smaller tributaries. The majority of fish disperse into tributaries from March through May, depending on the elevation. Spawning begins shortly after fish reach spawning areas, which is typically during a rising hydrograph and prior to peak flows (Thurow 1987). Steelhead typically select spawning areas at the downstream end of pools, in gravels ranging in size from approximately 0.5 to 4.5 inches in diameter (Pauley *et al.* 1986). Juveniles emerge from redds in 4 to 8 weeks, depending on temperature. After emergence, fry have poor swimming ability. They move into shallow, low velocity areas in side channels and along channel margins to escape high velocities and predators (Everest and Chapman 1972), and progressively move toward deeper water as they grow in size (Bjornn and Rieser 1991). Juveniles typically remain in freshwater for 2 or 3 years, or longer, depending on temperature and growth rate (Mullan *et al.* 1992). Smolts migrate downstream during spring runoff, which occurs from April to mid-June in the Snake River basin.

Counts of wild and hatchery-origin steelhead returning to the Snake River basin declined sharply in the early 1970s, increased modestly from the mid-1970s through the 1980s, and declined again during the 1990s (NPPC 2003). The longest consistent indicator of steelhead abundance in the Snake River basin is derived from counts of natural-origin steelhead at the uppermost dam on the lower Snake River. According to these estimates, the abundance of natural-origin summer steelhead at Lower Granite Dam declined from a 4-year average of 58,300 in 1964 to a 4-year average of 8,300, ending in 1998. The most recent 4-year average of wild fish (2000-2003) is 42,706 adults (USACE 2002). Parr densities in natural production areas have been substantially below estimated capacity (Hall-Griswold and Petrosky 1996). Adult returns at Lower Granite Dam dramatically increased since 2000; however, the increase is due primarily to hatchery returns, with wild fish comprising only 22% of the adult returns since 2000 (USACE 2002).

The long-term population growth rate, lambda ($\lambda$), was used by McClure *et al.* (2003) to indicate whether listed populations are increasing in numbers ($\lambda > 1$) or decreasing ($\lambda < 1$). From years 1965-2000, the estimated growth rate for the Snake River steelhead ESU as a whole, is 0.96, assuming no reproduction by hatchery fish (McClure *et al.* 2003). A population with a growth rate of 0.96 would shrink by 50% in 17 years. The growth rate for Snake River "A-run" steelhead is 0.97, and 0.93 for "B-run" steelhead. "A-run" and "B-run" fish are distinguished by differences in size, run timing, and length of ocean residence. "B-run" fish are larger, reside longer in the ocean, and occupy a distinct range. The differences in the two fish stocks represent an important component of phenotypic and genotypic diversity of the Snake River Basin steelhead ESU. A four percent increase in the growth rate for the Snake River steelhead ESU as a whole is needed to prevent extinction; however, an increase of seven percent is needed to sustain "B- run" steelhead (McClure *et al.* 2003).

### 2.1.3 Environmental Baseline in the Action Area

The environmental baseline is defined as: "the past and present impacts of all Federal, state, or private actions and other human activities in the action area, including the anticipated impacts of all proposed Federal projects in the action area that have undergone section 7 consultation and the impacts of state and private actions that are contemporaneous with the consultation in progress" (50 CFR 402.02). In step 2, NOAA Fisheries' evaluates the relevance of the environmental baseline in the action area to the species' current status. In describing the environmental baseline, NOAA Fisheries evaluates essential features of designated critical habitat and the listed Pacific salmon ESUs affected by the proposed action.

In general, the environment for listed species in the Columbia River Basin (CRB), including those that migrate past or spawn upstream from the action area, has been dramatically affected by the development and operation of the Federal Columbia River Power System (FCRPS). Storage dams have eliminated mainstem spawning and rearing habitat, and have altered the natural flow regime of the Snake and Columbia Rivers, decreasing spring and summer flows, increasing fall and winter flow, and altering natural thermal patterns. Power operations cause fluctuations in flow levels and river elevations, affecting fish movement through reservoirs, disturbing riparian areas and possibly stranding fish in shallow areas as flows recede. The eight dams in the migration corridor of the Snake and Columbia Rivers kill or injure a portion of the smolts passing through the area. The low velocity movement of water through the reservoirs behind the dams slows the smolts' journey to the ocean and enhances the survival of predatory fish (Independent Scientific Group 1996; NRC 1996). Formerly complex mainstem habitats in the Columbia, Snake, and Willamette Rivers have been reduced, for the most part, to single channels, with floodplains reduced in size, and off-channel habitats eliminated or disconnected from the main channel (Sedell and Froggatt 1984; Independent Scientific Group 1996; and Coutant 1999). The amount of large woody debris in these rivers has declined, reducing habitat complexity and altering the rivers' food webs (Maser and Sedell 1994).

Other human activities that have degraded aquatic habitats or affected native fish populations in the CRB include stream channelization, elimination of wetlands, construction of flood control dams and levees, construction of roads (many with impassable culverts), timber harvest, splash dams, mining, water withdrawals, unscreened water diversions, agriculture, livestock grazing, urbanization, outdoor recreation, fire exclusion/suppression, artificial fish propagation, fish harvest, and introduction of non-native species (Henjum *et al.* 1994; Rhodes *et al.* 1994; NRC 1996; Spence *et al.* 1996; and Lee *et al.* 1997). In many watersheds, land management and development activities have: (1) Reduced connectivity (i.e., the flow of energy, organisms, and materials) between streams, riparian areas, floodplains, and uplands; (2) elevated fine sediment yields, degrading spawning and rearing habitat; (3) reduced large woody material that traps sediment, stabilizes streambanks, and helps form pools; (4) reduced vegetative canopy that minimizes solar heating of streams; (5) caused streams to become straighter, wider, and shallower, thereby reducing rearing habitat and increasing water temperature fluctuations; (6) altered peak flow volume and timing, leading to channel changes and potentially altering fish migration behavior; and (7) altered floodplain function, water tables and base flows (Henjum *et al.* 1994; McIntosh *et al.* 1994; Rhodes *et al.* 1994; Wissmar *et al.* 1994; NRC 1996; Spence *et al.* 1996; and Lee *et al.* 1997).

Crooked River is a tributary of the South Fork Clearwater River, with a watershed encompassing 45,659 acres, three-quarters of which is rolling uplands. Crooked River flows from an elevation of 7,200 feet at its headwaters to 3,820 feet at the confluence with the South Fork Clearwater River. Crooked River provides spawning, rearing, and migratory habitat for Snake River steelhead and spring/summer chinook salmon. A fish weir, affiliated with the Dworshak National Fish Hatchery, is located one-quarter mile upstream of the mouth of Crooked River.

Habitat and stream conditions in the mainstem Crooked River have been altered by roads, timber harvest, and mining. There are currently 133 miles (1.87 $mi/mi^2$) of roads in the Crooked River watershed, with most of Forest Service Road (FSR) 233 running adjacent to the river. Timber harvest has affected approximately 5,000 acres (11%) of the watershed. Long stretches of the river and its tributaries show the effects of bucket dredge mining, particularly between the mouth and 12 miles upriver at Orogrande, Idaho. The action area was dredged during the 1940s and 1950s and was left with a series of tight, hardened meanders in the lower section of the river and greatly degraded fish habitat conditions. The NPNF attempted to partially restore Crooked River in the 1980s by reconstructing the stream channel and artificially creating structures and pools.

Streamside road density and past mining are the main factors impacting the habitat condition in the watershed. Floodplain connectivity, which is projected to be restored in the entire lower Crooked River in the future, is in poor condition as a result of the berms left from past mining operations. Existing roads and mine tailings have removed riparian vegetation, increasing temperatures and impairing water quality in Crooked River. The instream habitat elements within Crooked River have also been degraded. The Matrix of Pathways and Indicators (MPI) listed cobble embeddedness, percent fines, large woody debris, pool frequency, pool quality, and off-channel habitat as "not properly functioning." Roads, timber harvest, and mining have

increased sediment yield approximately 13% over natural levels. Currently there are areas in Crooked River where cobble embeddedness exceeds 80%, but generally, it ranges from 39-45%. The main channel is predominantly riffles and glides, with only a few pools. There is very little instream cover, and most of what cover there is was introduced through stream habitat projects in the late 1980s. There are few trees in the riparian area, resulting in low levels of acting and potential large woody debris. The fish/water quality objective of this watershed is listed in the NPNF Forest Plan as 90% of natural condition, whereas currently the watershed is estimated at 50% of natural condition.

Pacific salmon populations also are substantially affected by variation in the freshwater and marine environments. Ocean conditions are a key factor in the productivity of Pacific salmon populations. Stochastic events in freshwater (flooding, drought, snowpack conditions, volcanic eruptions, etc.) can play an important role in a species' survival and recovery, but those effects tend to be localized compared to the effects associated with the ocean. The survival and recovery of these species depends on their ability to persist through periods of low natural survival due to ocean conditions, climatic conditions, and other conditions outside the action area. Freshwater survival is particularly important during these periods because enough smolts must be produced so that a sufficient number of adults can survive to complete their oceanic migration, return to spawn, and perpetuate the species. Therefore it is important to maintain or restore properly functioning condition (PFC) in order to sustain the ESU through these periods. Additional details about the importance of freshwater survival to Pacific salmon populations can be found in Federal Caucus (2000), NMFS (2000), and Oregon Progress Board (2000).

The biological requirements of the listed species are not being met under the environmental baseline. Conditions in the action area need to improve, and any further degradation of the baseline, or delay in improvement of these conditions, would probably further decrease the likelihood of survival and recovery of the listed species under the environmental baseline.

## 2.2 Analysis of Effects

Effects of the action are defined as: "the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with the action, that will be added to the environmental baseline" (50 CFR 402.02). Direct effects will occur at the project site and may extend upstream or downstream. Indirect effects are defined in 50 CFR 402.02 as "those that are caused by the proposed action and are later in time, but still are reasonably certain to occur". They include the effects on listed species or critical habitat of future activities that are induced by the proposed action and that occur after the action is completed. "Interrelated actions are those that are part of a larger action and depend on the larger action for their justification" (50 CFR 403.02). "Interdependent actions are those that have no independent utility apart from the action under consideration" (50 CFR 402.02).

### 2.2.1 Habitat Effects

The CRCP BA provides an analysis of the effects of the proposed action on Snake River steelhead and their habitat. The analysis in this Opinion uses the MPI and procedures in NMFS (1996), the information in the BA, and the best scientific and commercial data available to evaluate elements of the proposed action that have the potential to affect the listed fish or their habitat.

#### *2.2.1.1 Effects of Proposed Berm Construction*

The NPNF proposes to use an excavator and front-end loader to construct a 3-foot high, 210-foot long berm in the floodplain of Crooked River. The berm will be located between the road and the mainstem of Crooked River, and the source material for the berm will come from an on-site rock pile. Therefore, heavy equipment will not need to cross the river in order to construct the berm. The proposed berm is situated in a floodplain composed mainly of rock and cobble left behind from the dredge mining that occurred historically. Therefore, due to the highly disturbed nature of the area, heavy equipment working in the riparian habitat conservation area (RHCA) is not expected to have a substantial impact on erosion potential and soil compaction. Riparian areas adjacent to a stream provide for the functions of shade, sediment delivery and filtering, nutrient or chemical regulation, streambank stability, and input of large woody debris and fine organic matter. The NPNF estimated only a slight increase in sediment levels would result from the terrestrial work activities.

The primary potential effects associated with the berm construction are the possible loss of vegetation and loss of floodplain connectivity. In order to construct the berm, the excavator and front-end loader will need to make a number of trips between the road and the river to move the rock stockpile to the intended berm site. Heavy equipment could have some effect on vegetation, but again due to the existing legacy mining impacts, the RHCA is composed mostly of rock substrate, and presently contains only sparse numbers of trees, shrubs, and grasses. The NPNF, with the mitigation measures specified in the BA, will replant native tree and shrub species, and annual grasses in any disturbed areas to reduce potential erosion.

The BA rates floodplain connectivity as being in a poor existing condition, and the proposed berm construction would maintain the already degraded floodplain condition in this stream section of Crooked River. However, the NPNF considers the berm construction to be a desirable action because it would prevent the stream from moving into an artificially constructed side channel that was not designed to accommodate high flows. If the stream were allowed to move into the side channel, the additional flow there would, in turn, exacerbate bank erosion and increase downstream sediment deposits. Also, if the side channel did capture the main flow, or even a significant amount of the flow, it would create a braided channel that would decrease adult salmonid upstream passage during low flows.

The NPNF recognizes that the berm construction is a temporary solution to an immediate problem, and in its BA, states that the long-term goal for Crooked River includes the development of a comprehensive channel and watershed restoration plan that would address numerous watershed issues. Funding for this plan, however, is not certain at this time.

#### *2.2.1.2 Effects of Proposed Instream Construction*

The NPNF proposes to use an excavator and front-end loader to complete four instream construction activities: reconfigure and repair two instream boulder structures, relocate two LWD piles, remove two point bars, and clean out a blocked culvert. All of these activities are designed to prevent downcutting, bank erosion, stream aggradation, or other undesirable effects in the main channel and the side channels of Crooked River.

All four instream work activities are expected to increase erosion, stream turbidity, and downstream sediment deposition. As heavy equipment descends from the stream bank and enters Crooked River, the equipment could leave tracks that could lead to erosion, or could break down banks. Undercut banks provide excellent rearing habitat and refuge for 1- to 2-year old fish. However, the BA has specified that a fisheries biologist will monitor such project implementation, and entrance to the stream should occur in places where entry would not break down stream banks and cause undue erosion.

Heavy equipment working in Crooked River will release sediment trapped behind boulder structures and logs, beneath point bars, and to some extent within the culvert. Therefore, sediment will be produced that could be re-deposited downstream. As this sediment is carried downstream, there will be locally increased sediment accumulations; however, because instream work will be limited to a 3-day period during flows, increases in turbidity and sediment deposition are expected to be small and short-lived. Short-term effects will probably last only until freshets redistribute the small amount of added sediment over a greater distance downstream. As instream construction occurs, there will be a loss of invertebrates that will likely have an indirect, short-term effect on food availability for juvenile steelhead. Death (2003) showed that aquatic substrate disturbance in unshaded streams has a greater effect on the amount of food available since there is less food available in these environments from terrestrial in-fall. Aquatic invertebrates will drift from the action area due to rolling substrate material (Culp *et al.* 1986) and increased sediment in the water column (Shaw and Richardson 2001). This will temporarily lead to fewer individuals and less diversity in the area (Shaw and Richardson 2001), but macroinvertebrate repopulation usually occurs within the first 19 days following a disturbance (Mattaei *et al.* 2000). Because, the actual amount of instream disturbance from the project activities is relatively small, and the amount of food available to salmonids should not change significantly.

Another concern related to the instream use of heavy equipment are accidental spills of fuel, lubricants, hydraulic fluid and similar contaminants into the RHCA, or directly into the water

where they could destroy habitat, injure or kill aquatic food organisms, or directly impact steelhead. The risk of toxic chemicals being introduced to the aquatic environment is reduced due to a mitigation measure requiring vehicle inspections prior to entering the stream. However, fuel storage, containment, overnight vehicle storage, and vehicle use within the RHCA were not discussed in the BA.

Several other effects are expected from the proposed action. Through the combination of building the berm and the instream work activities, Crooked River will remain confined to the main channel and not be allowed to divert its primary energy into side channels, thus preventing a massive erosion event and ensuring sufficient water in the main channel to allow adult fish passage during periods of low flow. Fish passage will also be maintained between the main channel and side channels by cleaning out a blocked culvert, thus maintaining the side channels and providing rearing habitat for young-of-the-year fish. Improvements to existing fish habitat structures and replacement of boulders and large woody debris will increase instream cover and enhance pool habitat. Thus, three of the instream actions (repairing boulder structures, relocating LWD piles, and cleaning out a culvert) will actually improve aquatic habitat conditions, albeit only slightly, within Crooked River and its side channels. The project in general, however, is expected to maintain present steelhead habitat.

According to the BA, the NPNF recognizes the need for a comprehensive aquatic restoration plan, but again, funding for such a plan and on-the-ground implementation of projects is uncertain.

### 2.2.2 Species Effects

The instream work activities could have a direct impact on steelhead. In response to instream disturbances, such as the use of heavy equipment to construct the proposed activities, fish are known to emigrate, either temporarily or permanently from the action area (Sigler *et al.* 1984). Kahler and Quinn (1998) showed salmonid movement is generally due to habitat choice as opposed to territorial eviction. The July 1 to August 15 work window is expected to allow steelhead fry to have hatched and emerge from their redds. Steelhead fry often use the calm, shallow water at the backsides of point bars for rearing immediately after emerging from their redds in late June. As they grow, they gradually move to deeper water and become more mobile. Newly emerged fry may not be able to leave the action area; therefore, considerable care must be taken to avoid crushing young fish as they may seek cover in the streambed substrate. It is expected that oversight direction provided by a fisheries biologist, as stipulated in the mitigation measures, will reduce or avoid instream activities that could kill steelhead fry.

Increased turbidity from instream work could have detrimental effects on salmonids. Juvenile salmonids, which remain in streams like Crooked River for up to 3 years, are more susceptible to increases in turbidity than are adults (Bjornn and Reiser 1991). Fry are the most susceptible since they have both limited mobility and limited physiological tolerance for turbidity (Servizi

and Martens 1990). Waters (1995) reported that sub-lethal and lethal effects on salmonids may occur when suspended sediment concentrations ranged between 270 and 6,000 mg/l. Lethal effects to subyearling rainbow trout were reported by Herbert and Merkens (1961) at 270 to 810 mg/l, but only after extended time periods (185 days). High turbidity for short time periods is not as likely to harm juvenile steelhead as high turbidity for long time periods (Newcombe and MacDonald 1991). According to the BA, in-channel work at O'Hara Creek on the NPNF, similar to the activities proposed for Crooked River, produced sediment concentrations up to 623 mg/l, but high levels existed for only 2-3 minutes, and after 10 minutes, most of the liberated sediment had subsided. In the immediate mixing zone below the activity in O'Hara Creek, turbidity levels ranged from 5 to 138 mg/l (USDA 2003).

The instream construction activities in Crooked River are expected to create sediment plumes extending no more than 150 feet downstream (USDA Forest Service 2002). The actual length and duration of the sediment plume will depend on the flow rate of Crooked River at the time of construction, but since the instream work is limited to low flow periods between July 1 and August 15, turbidity and sediment effects should be limited. Deposition of sediment in spawning habitat could potentially trap steelhead fry that have yet to emerge from the gravels, but these effects are unlikely, because most, if not all, steelhead fry in the action area emerge from the gravels prior to July 1. For the in-channel work on Crooked River, the NPNF anticipates only short-term effects due to the relatively low levels of turbidity expected, and the short length of time involved.

Steelhead may also move in response to turbidity produced from work activities, or due to a temporary decrease in food (invertebrates) caused by sediment deposition. Increased salmonid movement can result in additional exposure to predators or increased competition for food and cover. In a controlled experiment, Shaw and Richardson (2001) showed that when there is high turbidity, steelhead spend more time moving between areas of cover, feeding less, and being exposed to predators more. On the other hand, if there is moderate turbidity in the water, Gregory (1994) noted a perceived sense of security and increased forage directly downstream of the disturbance. The instream construction activities in Crooked River may temporarily inhibit juvenile feeding, and increase exposure to predators, but probably only for a few days. Due to the small amount of area impacted, the low turbidity expected, and with a 3-day, instream work period, the resulting impacts on steelhead are expected to be minimal.

The effect that a proposed action has on particular essential features or MPI pathways can sometimes be translated into a likely effect on population growth rate. In the case of this consultation, it is not possible to quantify an incremental change in survival for Snake River steelhead. While population growth rates have been calculated at the large ESU scale, changes to the environmental baseline from the proposed action were described only within the action area. An action that improves habitat in a watershed, and thus helps meet essential habitat feature requirements, may therefore increase lambda for Snake River steelhead. Based on the effects described above, the proposed action will have a slight negative effect on the survival and recovery of Snake River steelhead in the short term (somewhat counter balanced by

improvements to instream structure) and perhaps a positive effect later by avoiding a large erosion event and a braided channel that could impair upstream migration of adult steelhead. The production capacity of steelhead is expected to be maintained as a result of the proposed action, and the value of lambda for the Snake River steelhead population is not expected to change significantly as a result of this project.

### 2.2.3 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future state or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." These activities within the action area also have the potential to adversely affect the listed species. Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being reviewed through separate section 7 consultation processes. Federal actions that have already undergone section 7 consultations have been added to the description of the environmental baseline in the action area.

State, tribal, and local government actions will likely be in the form of legislation, administrative rules or policy initiatives. Government and private actions may encompass changes in land and water uses–including ownership and intensity–any of which could adversely affect listed species or their habitat. Government actions are subject to political, legislative, and fiscal uncertainties.

Changes in the economy have occurred in the last 15 years, and are likely to continue, with less large-scale resource extraction, more targeted extraction, and significant growth in other economic sectors. Growth in new businesses, primarily in the technology sector, is creating urbanization pressures and increased demands for buildable land, electricity, water supplies, waste-disposal sites, and other infrastructure.

Economic diversification has contributed to population growth and movement, and this trend is likely to continue. Such population trends will result in greater overall and localized demands for electricity, water, and buildable land in the action area; will affect water quality directly and indirectly; and will increase the need for transportation, communication, and other infrastructure. The impacts associated with these economic and population demands will probably affect habitat features such as water quality and quantity, which are important to the survival and recovery of the listed species. The overall effect will likely be negative, unless carefully planned for and mitigated.

There are no specific future state or private activities reasonably certain to occur in the action area; however, present activities and their effects described under the environmental baseline are likely to persist beyond the duration of this action. There is continuous activity within the Crooked River watershed, increasing sediment to the river. Orogrande, a small residential area approximately 10 miles upstream of the action area, and other private land holdings, can be

expected to be further developed. Activities on private lands are likely to increase sediment production and impair riparian and floodplain functions where developments encroach on the floodplain and the river. Recreation, specifically off-road vehicles, may be the greatest future private contributor to sedimentation in Crooked River as use increases and/or new trails are formed.

The Idaho Department of Environmental Quality will establish total maximum daily loads (TMDLs) in the Snake River basin, a program regarded as having positive water quality effects. The TMDLs are required by court order, so it is reasonably certain that they will be set. The State of Idaho has created an Office of Species Conservation to work on subbasin planning and to coordinate the efforts of all state offices addressing natural resource issues. Demands for Idaho's groundwater resources have caused groundwater levels to drop and reduced flow in springs for which there are senior water rights. The Idaho Department of Water Resources has begun studies and promulgated rules that address water right conflicts and demands on a limited resource. The studies have identified aquifer recharge as a mitigation measure with the potential to affect the quantity of water in certain streams, particularly those essential to listed species.

### 2.2.4 Consistency with Listed Species ESA Recovery Strategies

Recovery is defined by NOAA Fisheries regulations (50 CFR 402) as an "improvement in the status of listed species to the point at which listing is no longer appropriate under the criteria set out in section 4 (a)(1) of the Act." Recovery planning is underway for listed Pacific salmon in the Northwest with technical recovery teams identified for each domain. Recovery planning will help identify measures to conserve listed species and increase the survival of each life stage. NOAA Fisheries also intends that recovery planning identify the areas/stocks most critical to species conservation and recovery and thereby evaluate proposed actions on the basis of their effects on those areas/stocks.

Until the species-specific recovery plans are developed, the FCRPS Opinion and the related December 2000 *Memorandum of Understanding Among Federal Agencies Concerning the Conservation of Threatened and Endangered Fish Species in the Columbia River Basin* (together these are referred to as the Basinwide Salmon Recovery Strategy) provides the best guidance for judging the significance of an individual action relative to the species-level biological requirements. In the absence of completed recovery plans, NOAA Fisheries strives to ascribe the appropriate significance to actions to the extent available information allows. Where information is not available on the recovery needs of the species, either through recovery planning or otherwise, NOAA Fisheries applies a conservative substitute.

The NPNF has habitat protection and restoration commitments to uphold under the Basinwide Salmon Recovery Strategy (NMFS 2002). For Federal lands, PACFISH and land management plans define these commitments. The proposed action is consistent with the Basinwide Salmon

Recovery Strategy by keeping short-term sediment production to a minimum, maintaining channel characteristics suitable for fish passage, and repairing aquatic habitat structure and complexity.

## 2.3 Conclusions

The fourth step in NOAA Fisheries' approach to determine jeopardy and adverse modification of critical habitat is to determine whether the proposed action, in light of the above factors, is likely to appreciably reduce the likelihood of species survival and recovery in the wild or adversely modify or destroy critical habitat. For the jeopardy determination, NOAA Fisheries uses the consultation regulations and, where appropriate, The Habitat Approach (NMFS 1999) to determine whether actions would further degrade the environmental baseline or hinder attainment of PFC at a spatial scale relevant to the listed ESU. The analysis must be applied at a spatial resolution wherein the actual effects of the action upon the species can be determined. In this Opinion, NOAA Fisheries does not make a determination regarding critical habitat, because critical habitat is currently not designated for steelhead within the action area.

After reviewing the current status of Snake River steelhead, the environmental baseline for the action area, the effects of the proposed action, and cumulative effects in the action area, it is NOAA Fisheries' opinion that the CRCP is not likely to jeopardize the continued existence of Snake River steelhead.

While the action involves near water work to construct the berm and instream work to reconfigure two boulder structures, relocate two LWD piles, remove two point bars, and clean out a culvert, NOAA Fisheries expects project measures to be effective in avoiding or minimizing effects on steelhead. The key measures to protect steelhead are the July 1 to August 15 work window, a 3-day limit on instream work, inspections of equipment for leaks, erosion control measures to minimize sedimentation and turbidity, and a fisheries biologist to oversee critical portions of project implementation. The determination was based largely on the MPI presented in the BA, and supporting information, which indicated this project will maintain environmental baseline conditions.

## 2.4 Conservation Recommendations

Conservation recommendations are defined as "discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information" (50 CFR 402.02). Section 7 (a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. The conservation recommendations listed below are consistent with these obligations, and therefore should be implemented by the NPNF.

1. The NPNF should evaluate the frequency of travel on side-roads in the floodplain between Crooked River and FSR 233, and require all vehicles to remain on roads to avoid the loss of already scarce riparian vegetation.

2. The NPNF should develop a longer term solution for the action area that restores floodplain connectivity and stream channel dynamics.

3. The NPNF should increase riparian shading to Crooked River by planting trees and shrubs in the RHCA.

4. The NPNF should draft a long-term, comprehensive restoration project for the Crooked River watershed to restore all "functioning at risk" and "not properly functioning" aspects of the watershed.

In order for NOAA Fisheries to be kept informed of actions minimizing or avoiding adverse effects, or those that benefit listed species, NOAA Fisheries requests notification of the achievement of any conservation recommendations when the NPNF submits its annual monitoring report, or when the project is completed.

## 2.5 Reinitiation of Consultation

As provided in 50 CFR 402.16, reinitiation of formal consultation is required if: (1) The amount or extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; (2) new information reveals effects of the action may affect listed species in a way not previously considered; (3) the action is modified in a way that causes an effect on listed species that was not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease, pending conclusion of the reinitiated consultation.

## 2.6 Incidental Take Statement

The ESA at section 9 (16 USC 1538) prohibits take of endangered species. The prohibition of take is extended to threatened anadromous salmonids by the section 4(d) rule (50 CFR 223.203). Take is defined by the statute as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 USC 1532(19)). Harm is defined by regulation as "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavior patterns, including, breeding, spawning, rearing, migrating, feeding, or sheltering" (50 CFR 222.102). Harass is defined as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such

an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering" (50 CFR 17.3). Incidental take is defined as "takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant" (50 CFR 402.02). The ESA at section 7(o)(2) removes the prohibition from any incidental taking that is in compliance with the terms and conditions specified in a section 7(b)(4) incidental take statement (16 USC 1536).

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

### 2.6.1 Amount or Extent of Take

The proposed action is reasonably certain to result in incidental take of the listed species. NOAA Fisheries is reasonably certain the incidental take described here will occur because: (1) The listed species are known to occur in the action area; and (2) the proposed action is likely to cause impacts to aquatic habitat significant enough to impair feeding, breeding, migrating, or sheltering for the listed species. Despite the use of best scientific and commercial data available, NOAA Fisheries cannot quantify a specific amount of incidental take of individual fish or incubating eggs for this project. Instead, the extent of take is defined. The extent of take is anticipated to be limited to the length of stream affected, the length of streambank affected, and the length of side channel affected by this project. The area in which take will occur is the stream reach from 50 feet upstream (re: noise disturbance) of the upper most work site to 750 downstream of the work site. This is approximately 850 feet of stream, because the work site itself is approximately 50 feet long. Turbidity will be the main cause of take resulting from this action. Higher levels of turbidity over a 3-day period will displace juvenile fish and temporarily disrupt feeding, which can contribute to eventual injury or death, particularly for newly emerged fry. However, few fish are expected to be harmed, due to the short duration and limited extent of the instream work. There is also the possibility that some newly emerged juvenile fish will be too small to effectively swim away from heavy equipment entering the stream and will be crushed. NOAA does not consider this take likely since fish biologists will survey for steelhead redds, which will be avoided; however, this take is authorized should it occur even after all project measures are followed. If the project results in areas of disturbance exceeding the extent of take outlined above, the NPNF would need to reinitiate consultation. The authorized take includes only take caused by the proposed action within the action area as defined in this Opinion.

2.6.2 Reasonable and Prudent Measures

Reasonable and Prudent Measures (RPMs) are non-discretionary measures to minimize take, that may or may not already be part of the description of the proposed action. They must be implemented as binding conditions for the exemption in section 7(o)(2) to apply. The NPNF has the continuing duty to regulate the activities covered in this incidental take statement. If the NPNF fails to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse. NOAA Fisheries believes that activities carried out in a manner consistent with these RPMs, except those otherwise identified, will not necessitate further site-specific consultation. Activities which do not comply with all relevant RPMs will require further consultation.

NOAA Fisheries believes that the following RPMs are necessary and appropriate to minimize take of listed fish resulting from implementation of this action.

The NPNF shall:

1. Monitor the effects of the proposed action to determine the actual project effects on listed fish and report to NOAA Fisheries. Monitoring should detect adverse effects of the proposed action, assess the actual levels of incidental take in comparison with anticipated incidental take documented in the Opinion, and detect circumstances where the level of incidental take is exceeded.

2. Minimize the impact of incidental take resulting from outside contractors.

3. Minimize the impact of incidental take resulting from instream work activities.

4. Minimize the impact of incidental take resulting from fuels and/or toxic chemicals.

5. Minimize the impact of incidental take resulting from streambank disturbance.

2.6.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the action must be implemented in compliance with the following terms and conditions, which implement the RPMs described above for each category of activity. These terms and conditions are non-discretionary.

1. To implement Reasonable and Prudent Measure 1 ( monitoring), above, the NPNF shall:

*1a.* Visually monitor instream turbidity and inspect all erosion controls weekly during the dry season, daily if precipitation occurs, or more often as necessary to ensure that: (a) the upland work area is not contributing visible sediment to water; and (b) 24-hours after work below ordinary high water is complete, the in-water work area is not contributing visible sediment to water. If monitoring or inspections show that the erosion controls are ineffective, immediately mobilize work crews to repair, replace, or reinforce controls as necessary.

*1b.* Monitor the success of re-establishing vegetation in the action area after one growing season, or if necessary, longer. Replant any dead or dying plants, as necessary.

*1c.* Maintain records of all harm, harassment, and death of listed species in the action area. Records shall identify the location, date, species, and number of individuals.

*1d.* Submit by October 15 of the year following project implementation, the above information in a closure report, to: NOAA Fisheries, Grangeville Field Office, 102 N. College, Grangeville, Idaho 83530.

2. To implement Reasonable and Prudent Measure 2 (outside contractors), above, the NPNF shall include all terms and conditions in any permit, grant, or contract issued for the implementation of the action described in this Opinion.

3. To implement Reasonable and Prudent Measure 3 (instream work), above, the NPNF shall:

*3a.* Conduct all instream activities between July 1 and August 15, to minimize take of juvenile steelhead and steelhead fry in the action area.

3*b.* Operate heavy equipment for instream activities from existing roads or the streambank as much as possible.

*3c.* Survey all project sites. If steelhead redds are located within 50 feet upstream or 150 feet downstream from an instream construction site, instream work shall not begin until a fisheries biologist verifies that:
(1) juveniles have emerged from the redd(s), as indicated by the presence of age-0 fish in the vicinity of the redd(s); and
(2) work activities will avoid newly emerged fry.

3*d.* Require operators of construction equipment and/or construction personnel to immediately cease operation if a sick, injured, or dead specimen of a threatened or endangered species is found. The finder must notify the NPNF, which in turn will contact the Vancouver Field Office of NOAA Fisheries Law Enforcement at (360) 418-4246 before resuming activities. The finder must take care in handling

sick or injured specimens to ensure effective treatment, and in handling dead specimens to preserve biological material in the best possible condition for later analysis of cause of death. The finder also has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed unnecessarily.

*3e.* Reduce the risk of killing juvenile steelhead by requiring a fish biologist to designate heavy equipment water crossing sites that will least affect steelhead.

4. To implement Reasonable and Prudent Measure 4 (fuels and toxic chemicals), above, the NPNF shall:

4*a.* Prepare and implement a Spill Prevention Control and Counter Measures Plan (40 CFR 112). Where fuels are present, spill containment materials must be present.

*4b.* Locate areas for fuel storage, equipment storage, and equipment refueling at least 100 feet away from any water body.

*4c.* Inspect and clean all equipment used for construction prior to arriving at the project site.

*4d.* Inspect heavy equipment daily to assure there are no hydraulic fluid, fuel, or oil leaks.

*4e.* Notify NOAA Fisheries as soon as possible of any fuel spill of 1 gallon or more.

5. To implement Reasonable and Prudent Measure 5 (streambank disturbance), above, the NPNF shall:

*5a.* Use appropriate sediment control measures (e.g. straw bales, silt fences) to minimize sediment transport into the stream channel and downstream from project sites.

*5b.* Prevent destruction of any undercut banks by only entering the stream with heavy equipment where undercut banks are not present.

5*c.* Minimize disturbance of existing vegetation at the project location.

*5d.* Reseed and replant all areas disturbed by construction activities with native species and annual grasses. Replanting shall occur the same year as construction, and again after spring run off, if necessary.

# 3. MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

## 3.1 Statutory Requirements

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance EFH for those species regulated under a Federal fisheries management plan.

Pursuant to the MSA:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (section 305(b)(2)).

- NOAA Fisheries must provide conservation recommendations for any Federal or state action that may adversely affect EFH (section 305(b)(4)(A)).

- Federal agencies must provide a detailed response in writing to NOAA Fisheries within 30 days after receiving EFH conservation recommendations. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with NOAA Fisheries EFH conservation recommendations, the Federal agency must explain its reasons for not following the recommendations (section 305(b)(4)(B)).

The EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA section 3). For the purpose of interpreting this definition of EFH: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR 600.10). Adverse effect means any impact which reduces quality and/or quantity of EFH, and may include direct (*e.g.*, contamination or physical disruption), indirect (*e.g.*, loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

The EFH consultation with NOAA Fisheries is required for any Federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities.

The objectives of this EFH consultation are to determine whether the proposed action may adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects on EFH.

### 3.2 Identification of EFH

Pursuant to the MSA the Pacific Fishery Management Council (PFMC) has designated EFH for three species of Federally-managed Pacific salmon: chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC 1999), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based, in part, on this information.

### 3.3 Proposed Action

The proposed action and action area are detailed above in Sections 1.2 and 1.3 of this document. The action area includes habitats that have been designated as EFH for various life stages of chinook salmon.

### 3.4 Effects of Proposed Action on EFH

The effects on chinook salmon EFH are the same as those described for Snake River steelhead and are described in detail in Section 2.2.1 of this document. The proposed action may result in short- and long-term adverse effects on a variety of habitat parameters. These adverse effects are:

1. Increased sediment from heavy equipment use in the RHCA, loss of some streamside vegetation, instream work activities, and the placement of loose materials to create the berm.

2. The potential for toxic fuel contamination caused by fuel spills or unclean equipment.

3. The potential for the temporary loss of instream cover and refugia through boulder structure work and relocation of LWD.

4. Temporary changes in food supply as a result of instream activities.

5. Disruption of streambed habitat caused by driving heavy equipment in the stream.

### 3.5 Conclusion

NOAA Fisheries concludes that the proposed action may adversely affect designated EFH for Snake River chinook salmon.

### 3.6 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations to Federal agencies regarding actions that may adversely affect EFH. NOAA Fisheries understands that the conservation measures described in the BA will be implemented by the NPNF, and believes that these measures are sufficient to minimize, to the extent practicable, the following EFH effects: temporary impacts on food items and availability, relocation of instream cover, temporary disruption to fish refugia, and temporary impacts to water quality. Although, these conservation measures are not sufficient to fully address the remaining adverse effects to EFH, specific Terms and Conditions outlined in Section 2.6.3 are generally applicable to designated EFH for Snake River chinook salmon, and do address these adverse effects. Consequently, NOAA Fisheries recommends that the following terms and conditions be implemented as EFH conservation measures:

1. Term and Condition 1 (monitoring) and its supporting points will ensure these conservation recommendations are achieving their goal of minimizing project effects on water quality and stream substrate.

2. Term and Condition 2 (outside contractors) will minimize projected effects on water quality, stream substrate, and instream cover.

3. Term and Condition 3 (instream work activities) and its supporting points will minimize project effects on water quality, stream substrate, instream cover, and forage for steelhead.

4. Term and Condition 4 (fuels and/or toxic chemicals) and its supporting points will minimize project effects on water quality and forage.

5. Term and Condition 5 (streambank disturbance) and its supporting points will minimize project effects on water quality, stream substrate, and edge cover for steelhead.

### 3.7 Statutory Response Requirement

Pursuant to the MSA (§305(b)(4)(B)) and 50 CFR 600.920(j), Federal agencies are required to provide a detailed written response to NOAA Fisheries' EFH conservation recommendations within 30 days of receipt of these recommendations. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. In the case of a response that is inconsistent with the EFH conservation recommendations, the response must explain the reasons for not following the recommendations, including the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

### 3.8 Supplemental Consultation

The NPNF must reinitiate EFH consultation with NOAA Fisheries if the proposed action is substantially revised in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920(l)).

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